Reply from the Authors

We commend Dr. Keven et al for their observations regarding the importance of pretransplant parameters in the determination of the cardiovascular outcome, but the main goal of our paper [1] was to clearly show that aortic stiffness is increased independently of age and mean arterial pressure in patients with kidney transplantation. The interest of this finding has also been developed in a recent review [2].

The link between the kidneys and the cardiovascular system is very well known, and common denominators were found to affect their function in health and diseases. It is clear that the remaining part of the paper cannot resolve all the problems to discuss.

Regarding the dead patients, the comment is adequate, but this kind of error is necessarily introduced in all clinical investigations: from birth to death, we are all simple survivors, whatever we are doing.

The selection of the composite end point was carefully undertaken and is in accordance with the definition of composite end points. As far as tobacco consumption, the total number of pack-years was considered since it reflects the infiltration of the vascular system with tobacco, depending on the amount and time course of the consumption. In addition, the finding regarding tobacco consumption and renal function is very frequently observed specifically in the case of renal damage [3].

The correct mean transplant ages are 54.1 ± 29.2 months in the entire population, 54 ± 30.1 and 54.8 ± 23.3 months in patients with negative and positive end points, respectively.

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Thirst in dialysis patients

To the Editor: That thirst is influenced by salt consumption is an everyday experience and results from the fact that thirst serves osmoregulation. Thus, the volume of body (extracellular) fluid is primarily determined by salt [1]. This seemingly paradoxical fact is basic pathophysiologic knowledge, and no nephrologist will deny that interdialytic weight gain is mainly caused by ingestion of dietary salt. Yet, this simple truth is being neglected by some dialysis doctors. The article of Bots et al [2] well illustrates this point.

Starting with the erroneous statement that "interdialytic weight gain (IWG) is an indicator of compliance to the fluid-restricted diet," they found correlations between feeling of thirst, dry mouth, and IWG. No wonder! That dry mouth is related to thirst hardly needs statistical proof. That IWG was related to feeling of thirst is almost certainly due to more salt consumption, which is the natural thirst stimulus. Of course, it cannot be excluded that other, nonosmotic stimuli are involved, but if 'inappropriate' thirst were the cause of weight gain, this would be evident by a decrease in serum sodium concentration. However, this determination, which is the only relevant one in this context, was not performed. The authors do not even discuss this issue.

Trying to contain volume expansion resulting from salt consumption by water restriction is not only cruel but also futile: thirst is one of the most powerful urges. Dialysis patients all over the world are tormented by instructions to limit fluid intake instead of limiting dietary salt. This makes them feel guilty because they cannot comply, while the aim, preventing volume load and its consequence, hypertension, and heart failure, is not achieved.

The present investigation and suggestions to advise mouthwashes and chewing gum detract the attention of dialysis doctors from the main problem, and may perpetuate wrong strategies to the detriment of dialysis patients.

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Reply from the Authors

We would like to thank Dorhout Mees for reading our article, critically [1]. Thirst or the urge to drink is a clinical relevant problem in the majority of patients on dialysis. As we have stated in our introduction, we fully agree that limiting dietary salt consumption is a very important factor influencing water intake, although it is not worldwide recommended as a standard instruction to patients on dialysis.

Thirst is associated with a change in the solute concentration of the interstitial fluid and the depletion of intravascular volume, respectively. To maintain osmolarity, sodium ingestion leads to water intake. It has been shown by Wirth [2] that the mean predialysis serum sodium concentrations remained within normal limits, and did not correlate with interdialytic weight gain (IWG). IWG is a generally accepted parameter to estimate compliance to the fluid- and sodium-restricted diet, and includes both effects [3–5]. Although the correlation between thirst feelings, a dry mouth, and IWG seems logical, we have now added substantial scientific evidence to this assumption.

The thirst mechanism includes—besides sodium intake—other factors such as potassium depletion, angiotensin II concentration, acute increase in urea, hyperglycemia, psychologic, social, and oral-pharyngeal factors [3]. In our article we have mainly focused on the oral-pharyngeal factors such as dry mouth feelings and reduced salivary secretion as a stimulus to drink. In addition, sodium intake initiates thirst, but not necessarily a dry mouth. Oral dryness in hemodialysis patients also depends on other factors that should be explored in the future research.

The aim of our study [1] was not to distract the attention of *dialysis doctors* from the main problem, but to substantiate and explore new concepts for distracting *dialysis patients* from their daily struggle with the fluid- and sodium-restricted diet.

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